

REMARKS/ARGUMENTS

Prior to entry of this amendment, claims 16-25 are currently pending in the subject application. Claims 16 and 21 are independent.

Applicants thank the Examiner for granting the interview on May 17, 2005, with the applicants' representative. The Examiner's interest in advancing prosecution of this application is gratefully acknowledged.

Claims 16-25 are presented to the Examiner for further prosecution on the merits.

A. Introduction

In the outstanding Office Action Made Final, mailed March 28, 2005, the Examiner required a drawing that illustrates gas injection, rejected claims 16-18, 21, 22 and 25 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,319,099 B1 to Tanoue et al. (hereinafter "the Tanoue et al. reference") in view of U.S. Patent No. 6,231,672 B1 to Choi et al. (hereinafter "the Choi et al. reference") and U.S. Patent No. 6,206,757 B1 to Custer et al. (hereinafter "the Custer et al. reference"), and rejected claims 19, 20, 23 and 24 under 35 U.S.C. § 103(a) as being unpatentable over the Tanoue et al., Choi et al. and Custer et al. references, in further view of U.S. Patent No. 5,498,196 to Karlsrud et al. (hereinafter "the Karlsrud et al. reference"). In view of the issues raised in the Office Action Made Final, applicants initiated an interview with the Examiner, which took place at the United States Patent and Trademark Office on May 17, 2005. As required by 37 C.F.R. § 1.133(b), applicants' summary of that interview is set forth below.

B. Applicant Initiated Interview Summary

1. Brief Description of any Exhibit Shown

No exhibit was shown or demonstrated during the interview of May 17, 2005.

2. Identification of the Claims Discussed

The Examiner and applicants' representative discussed independent claims 16 and 21 and dependent claim 17.

3. Identification of the Specific Prior Art Discussed

The Examiner and applicants' representative discussed U.S. Patent No. 6,206,757 B1 to Custer et al. ("the Custer et al. reference").

4. Identification of the Proposed Amendments

No amendments were proposed to independent claims 16 and 21. The Examiner and applicants' representative discussed possible amendments to dependent claim 17 that might more particularly recite aspects of the present invention. However, no agreement was reached regarding any amendments to claim 17.

5. Summary of the Arguments Presented to the Examiner

Applicants' representative presented arguments regarding the failure of the Custer et al. reference to disclose the subject matter recited in independent claims 16 and 21. Generally, and as set forth below in greater detail below, applicants' representative argued that the Custer et al. reference fails to disclose or suggest injecting gas into a plurality of chemical solution supply sources, *thereby providing a pressure*, and injecting a plurality of chemical solutions from the chemical solution supply sources *using the pressure*.

6. General Indication of Other Pertinent Matters Discussed

Applicants' representative argued that the Examiner's requirement of an illustration of gas should be withdrawn, as the existing drawings provide sufficient illustration. The details of the arguments presented by applicants' representative are set forth below.

7. General Outcome of the Interview

No agreement between the Examiner and applicants' representative was reached.

C. Requirement of New Drawing

In the outstanding Office Action Made Final, the Examiner required a drawing that illustrates gas injection and stated that applicants claim injecting a gas, but fail to illustrate such gas injection in the figures. Applicants respectfully submit that gas injection is adequately illustrated in the drawings as originally filed.

Applicants note that all the claims pending in the present application are drawn to methods of supplying chemical solutions and respectfully submit that the current drawings illustrate the claimed methods with sufficient detail. See, e.g., FIG. 5 at block S10, which is captioned "Provide Pressure to First and Second Chemical Supply Sources" and, e.g., chemical supply source 210 in FIGS. 2-3 and chemical supply sources 310a and 310b in FIG. 4. Applicants respectfully submit that claims to methods involving "injecting gas into the plurality of chemical solution supply sources, thereby providing a pressure to the plurality of chemical solution supply sources," as recited in claim 16, are sufficiently general as to not require a detailed illustration of a gas injection system or apparatus, and therefore such illustration is not essential for a proper understanding of the claims. Applicants further note that the rules state that conventional features *should be* illustrated in the form of a labeled representation, e.g., a labeled rectangular box. (37 C.F.R. § 1.83). Accordingly, applicants respectfully submit that gas injection should be illustrated in a general way, as done in, e.g., FIGS. 2, 3 and 5.

All the claims presently pending in the instant application are drawn to methods, the recitations of gas injection are of a general nature and none of the method claims recite particular structural aspects of a gas injection system or apparatus. Therefore, applicants respectfully submit that the features illustrated in the current drawings, e.g., the labeled rectangular boxes representing chemical supply sources 210, 310a and 310b, provide sufficiently detailed illustration for the method claims presently pending in the instant application.

In the next Office action, applicants respectfully request that the Examiner clarify this requirement. Applicants note that this requirement for a new drawing was not stated to be an "objection," nor was any time period for compliance with the requirement set forth.

D. Asserted Obviousness Rejection of Claims 16-18, 21, 22 and 25

In the outstanding Office Action Made Final, the Examiner rejected claims 16-18, 21, 22 and 25 under 35 U.S.C. § 103(a) as being unpatentable over the Tanoue et al. reference in view of

the Choi et al. and Custer et al. references. This rejection is respectfully traversed for at least the reasons set forth below.

Claim 16 recites, in part:

respectively injecting gas into the plurality of chemical solution supply sources, *thereby providing a pressure* to the plurality of chemical solution supply sources;

...

injecting the plurality of chemical solutions from the chemical solution supply sources into a chemical injection part through a plurality of branch lines *using the pressure*;

(*Emphasis added*). Applicants respectfully submit that the proposed combination of the Tanoue et al., Choi et al. and Custer et al. references fails to disclose or suggest all elements of claim 16. In particular, the proposed combination of references fails to disclose injecting gas, thereby providing *a pressure* to the supply sources, and using *the pressure* to inject solutions from the supply sources into a chemical reaction part.

As set forth by the applicants' representative during the interview of May 17, 2005, claim 16 recites *providing a pressure* and *using the pressure* to inject solutions. Thus, injecting gas imparts a pressure sufficient to inject the plurality of chemical solutions. In the outstanding Office Action Made Final, the Examiner asserted that the Custer et al. reference discloses gas injection and "the gas 60 injected into a chemical source 54 and the solution is transported to the polishing apparatus 56." (*Office Action Made Final of Mar 28, 2005, at page 3*). Applicants respectfully submit that the cited passage does not disclose "injecting the plurality of chemical solutions . . . *using the pressure*," as recited in claim 16.

The Custer et al. reference is drawn to methods of reintroducing dissolved gasses into solutions for the purpose of increasing dissolved gas concentration, not for the purpose of imparting flow to the solutions. The Custer et al. reference repeatedly discloses that "gas is injected into the liquid *to increase a total dissolved gas concentration*." (*See the Custer et al.*

reference at, e.g., col. 1, lines 54-55 and 60-61, and col. 2, lines 5-6). The Custer et al. reference discloses that the importance of increasing the total dissolved gas concentration arises from the discovery that maintaining a threshold dissolved gas concentration is important because wafers will slip out of a polishing apparatus if the dissolved gas concentration is too low. (*The Custer et al. reference, col. 2, lines 30-36*).

Furthermore, it is clear that the methods disclosed by the Custer et al. reference would be unworkable to impart flow to the solutions. The Custer et al. reference is not using a pressure provided by the gas injection for “injecting the plurality of chemical solutions . . . using the pressure,” as recited in claim 16, because the Custer et al. reference discloses that the pressure at which the gas is injected is not sufficient to inject a solution into the polishing apparatus. In particular, with reference to FIG. 3 in the Custer et al. reference, applicants note that the reference discloses injecting gas flowing from check valve 68 at a pressure of 2 p.s.i. into a pipe 52 supplied with water flowing from a source 54 at a pressure of 45-50 p.s.i. (*See the Custer et al. reference, FIG. 3 and col. 4, lines 20-24*). Assuming, *arguendo*, that water is a “chemical solution,” it is apparent that the 2 p.s.i. gas is insufficient to supply the chemical solution at the pressure of 45-50 p.s.i. That is, 2 p.s.i. gas cannot impart 45-50 p.s.i. to a solution.

The Custer et al. reference fails to disclose all elements of claim 16. Furthermore, as neither the Tanoue et al. nor the Choi et al. references disclose or suggest the teachings missing from the Custer et al. reference, applicants respectfully submit that the proposed combination of the Tanoue et al., Choi et al. and Custer et al. references fails to disclose or suggest all elements of claim 16. Independent claim 21 recites similar elements to claim 16, and the remaining rejected claims depend from either claim 16 or claim 21. Accordingly, claims 16-18, 21, 22 and 25 are believed to be allowable and reconsideration and withdrawal of this rejection, and an indication of allowance, are respectfully requested.

E. Asserted Obviousness Rejection of Claims 19, 20, 23 and 24

In the outstanding Office Action Made Final, the Examiner rejected claims 19, 20, 23 and 24 under 35 U.S.C. § 103(a) as being unpatentable over the Tanoue et al., Choi et al. and Custer et al. references, in further view of the Karlsrud et al. reference. Applicants respectfully traverse this rejection for at least the reasons set forth below.

In rejecting claims 19, 20, 23 and 24, the Examiner again asserted that the proposed combination of the Tanoue et al., Choi et al. and Custer et al. discloses “injecting the plurality of chemical solutions from the chemical solution supply sources into a chemical injection part through a plurality of branch lines using the pressure,” as recited in independent claim 16, and as recited in analogous fashion in independent claim 21. As discussed above, applicants respectfully submit that the proposed combination of the Tanoue et al., Choi et al. and Custer et al. fails to suggest, much less disclose, this claim element. Furthermore, the Karlsrud et al. reference relied on to reject dependent claims 19, 20, 23 and 24 similarly fails to suggest, much less disclose, this claim element. Accordingly, applicants respectfully assert that the proposed combination of the Tanoue et al., Choi et al. and Custer et al. and Karlsrud et al. references fails to suggest, much less disclose, all elements of the rejected claims. Therefore, reconsideration and withdrawal of the rejection of claims 19, 20, 23 and 24, and an indication of allowance, are respectfully requested.

F. Conclusion

Since the cited prior art relied on to reject the claims of the subject application fails to render obvious the present invention, applicants respectfully submit that claims 16-25 are now in condition for allowance, and a notice to that effect is respectfully requested.


If the Examiner believes that additional discussions or information might advance the prosecution of the instant application, the Examiner is invited to contact the undersigned at the telephone number listed below to expedite resolution of any outstanding issues.

In view of the foregoing remarks, reconsideration of this application is earnestly solicited, and an early and favorable further action upon all pending claims is hereby requested.

Respectfully submitted,

LEE & MORSE, P.C.

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PETITION and
DEPOSIT ACCOUNT CHARGE AUTHORIZATION

This document and any concurrently filed papers are believed to be timely. Should any extension of the term be required, applicant hereby petitions the Director for such extension and requests that any applicable petition fee be charged to Deposit Account No. 50-1645.

If fee payment is enclosed, this amount is believed to be correct. However, the Director is hereby authorized to charge any deficiency or credit any overpayment to Deposit Account No. 50-1645.

Any additional fee(s) necessary to effect the proper and timely filing of the accompanying-papers may also be charged to Deposit Account No. 50-1645.